REMARKS

As a result of the previous amendment, claims 2,4 and 6 were canceled and claims 1 , 7-9, 11-12 were amended and claim 20 was added. By Office action mailed 3 February 03, The Examiner has maintained a previous rejection based upon Mansfield. et al, of record.

Applicant is obliged to point out that the rejection of claim 1 as expressed in Examiner's paragraph 2 is in error or simply reflects a misunderstanding of the present claim. The Examiner states that

> "Mansfield discloses......a pair of shield coils, disposed coaxially around said gradient coils, *each of said shield coils being of radius b* which is greater than a (Column 17, lines 30-34; Figure 25, *#S1 and #S2*),..." (emphasis added).

It is not the case that S1 and S2 are of the *same* radius and these shields are not representative of the pair of axially spaced, equal radius shields of the present invention. Applicant again offers amendment designed to more clearly distinguish the invention over the shields of Mansfield. Applicant's shield coils answer a practical requirement for frugal use of space within the bore of an NMR magnet, whereas the Mansfield shields contribute additional dead space to serve the need of his *radially* spaced shield coils. g

At col.17, line 25, Mansfield remarks that a Maxwell pair is known for producing a z gradient field. (The present invention is not simply a Maxwell pair). However, in introducing figure 25, at col. 17, lines 30,et sequi, the discussion is in terms of a simple saddle coil for producing a transverse gradient. The contribution of Mansfield is not the simple gradient coil arrangement, but the active shielding achieved with his two active cylindrical screens of radii b and c greater than gradient coil radius a.

The Examiner has frequently referenced figures 19 and 25 of Mansfield, et al. It is evident that the saddle coils shown and discussed at col. 12 is not a Maxwell pair. Moreover, the geometry of the quoted Mansfield reference is not to be compared with the present invention, inasmuch as the invention provides in claim 1 for "a magnetic field along said z-axis with a linear gradient near said origin in said z direction". Figures 19 and 25 of Mansfield are examples for

> " a gradient field is produced in the form of a magnetic field along the z axis

which <u>has a gradient in the x direction</u>." (emphasis added).

Thus the Examiner is comparing a Mansfield transverse saddle coil for producing   with the present extended Maxwell pair for producing   .

The Examiner has also combined Vavreck, of record with Mansfield as basis for rejection of dependent claim 5. The combination suffers from the distinction that Vavreck describes a Maxwell pair for z axis gradients whereas Mansfield is limited to two radiaclaims depending from claim 1 displaced shields.

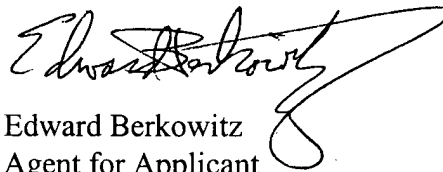It is sufficient to remark that should be allowable for that reason

Claim 11 contains the constraint that for the pair of shield coils disposed axially spaced and coaxially

"each of said shield coil surfaces being of radius b....".

is a clear limitation of identical radii for the shield coils and is necessary to describe the geometry to which the case applies. The radially spaced shields of Maxwell is distinguished.

Applicant has taken care to so amend claim 1 as to remove any ambiguity and clearly distinguish over prior art. The degree to which such prior art does not apply has been pointed out and it is believed that the claims are in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

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